Document: 1185987.3

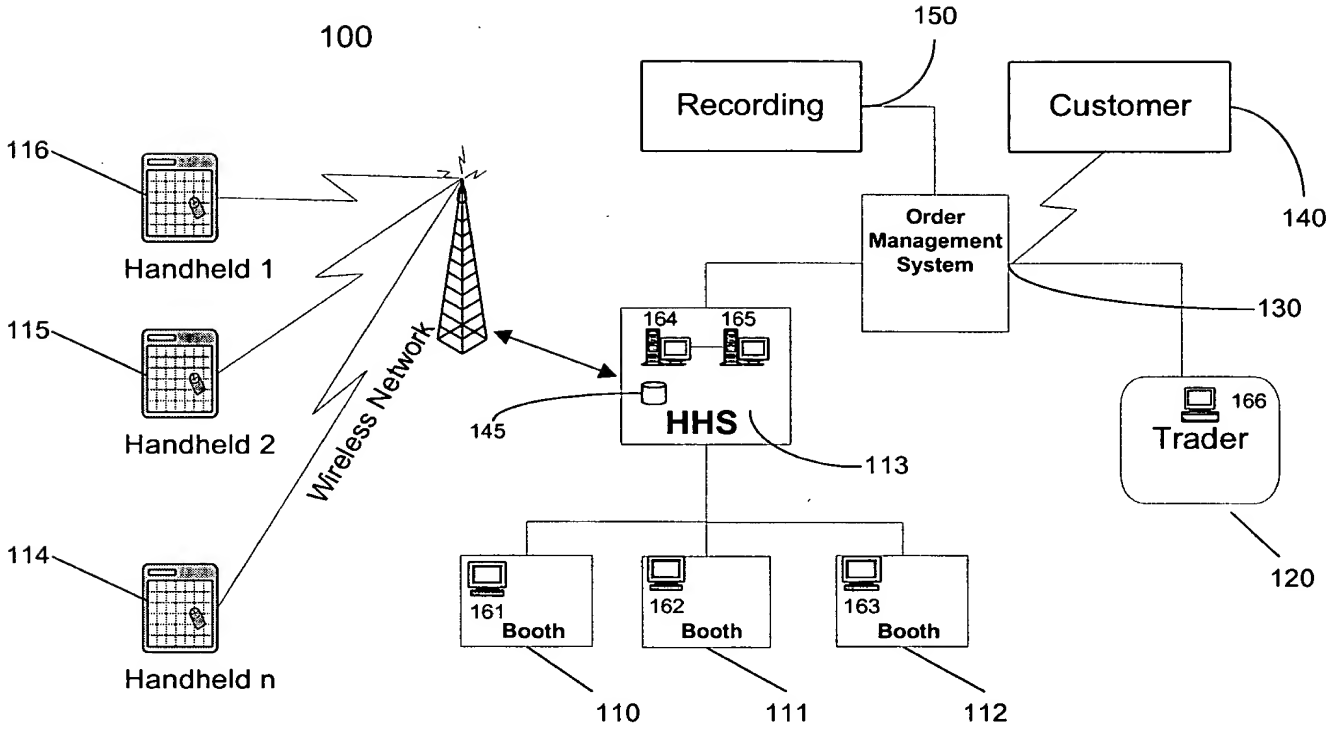

Fig. 1

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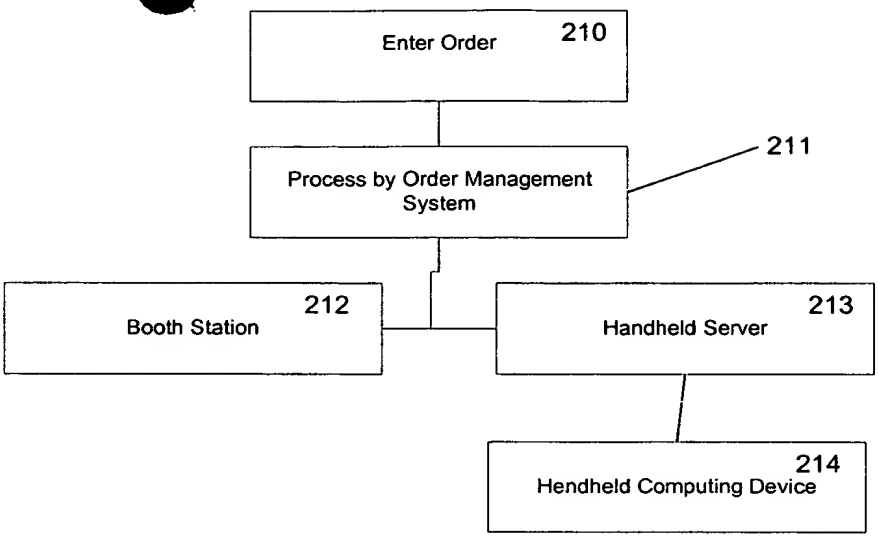

Fig. 2

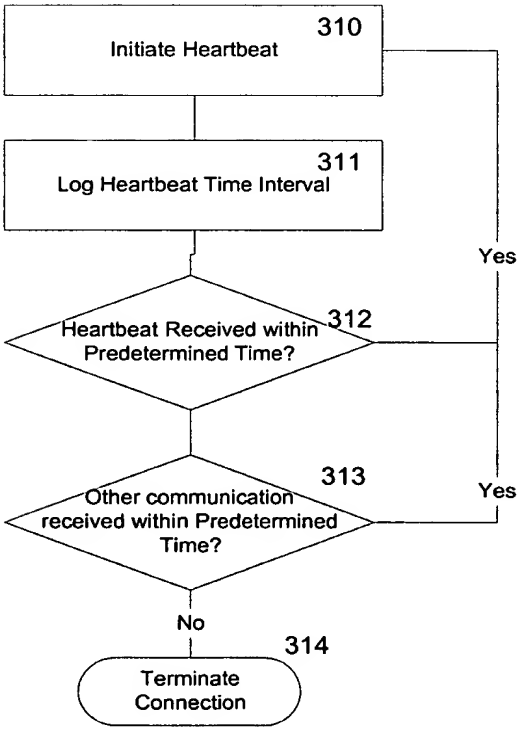

Fig. 3

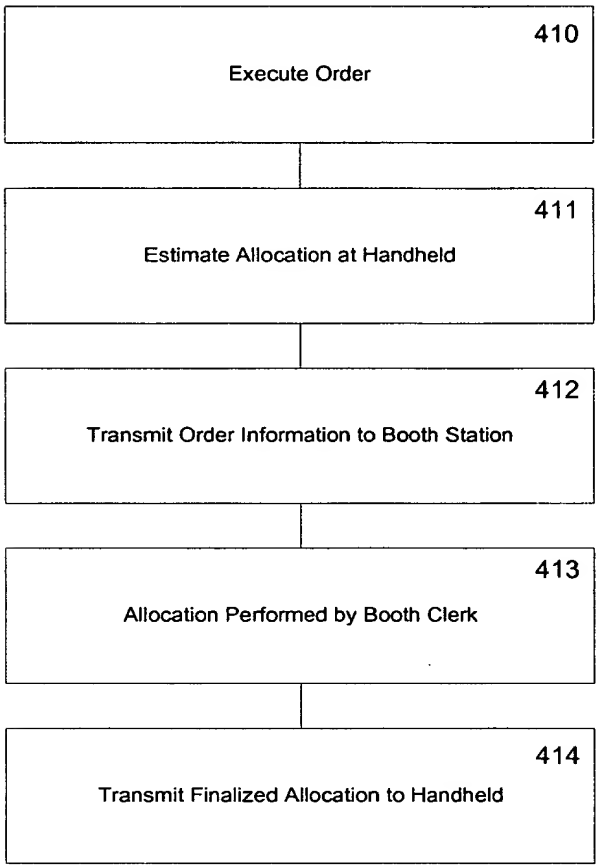

Fig. 4

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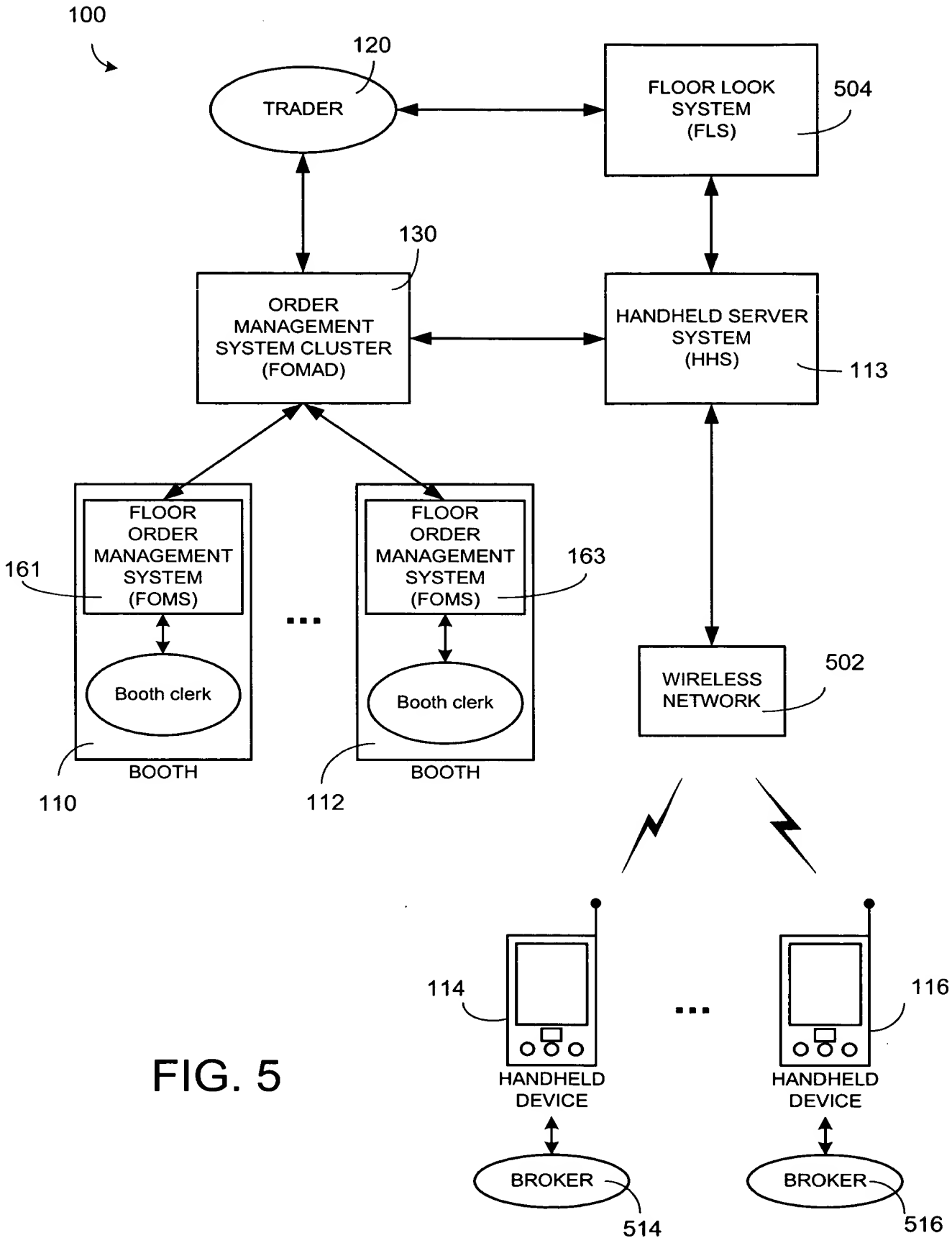
100
120
TRADER
FLOOR LOOK SYSTEM (FLS)
504
130
ORDER MANAGEMENT SYSTEM CLUSTER (FOMAD)
HANDHELD SERVER SYSTEM (HHS)
113
FLOOR ORDER MANAGEMENT SYSTEM (FOMS)
161
Booth clerk
BOOTH
110
FLOOR ORDER MANAGEMENT SYSTEM (FOMS)
163
Booth clerk
BOOTH
112
WIRELESS NETWORK
502
114
HANDHELD DEVICE
116
HANDHELD DEVICE
BROKER
514
BROKER
516

FIG. 5

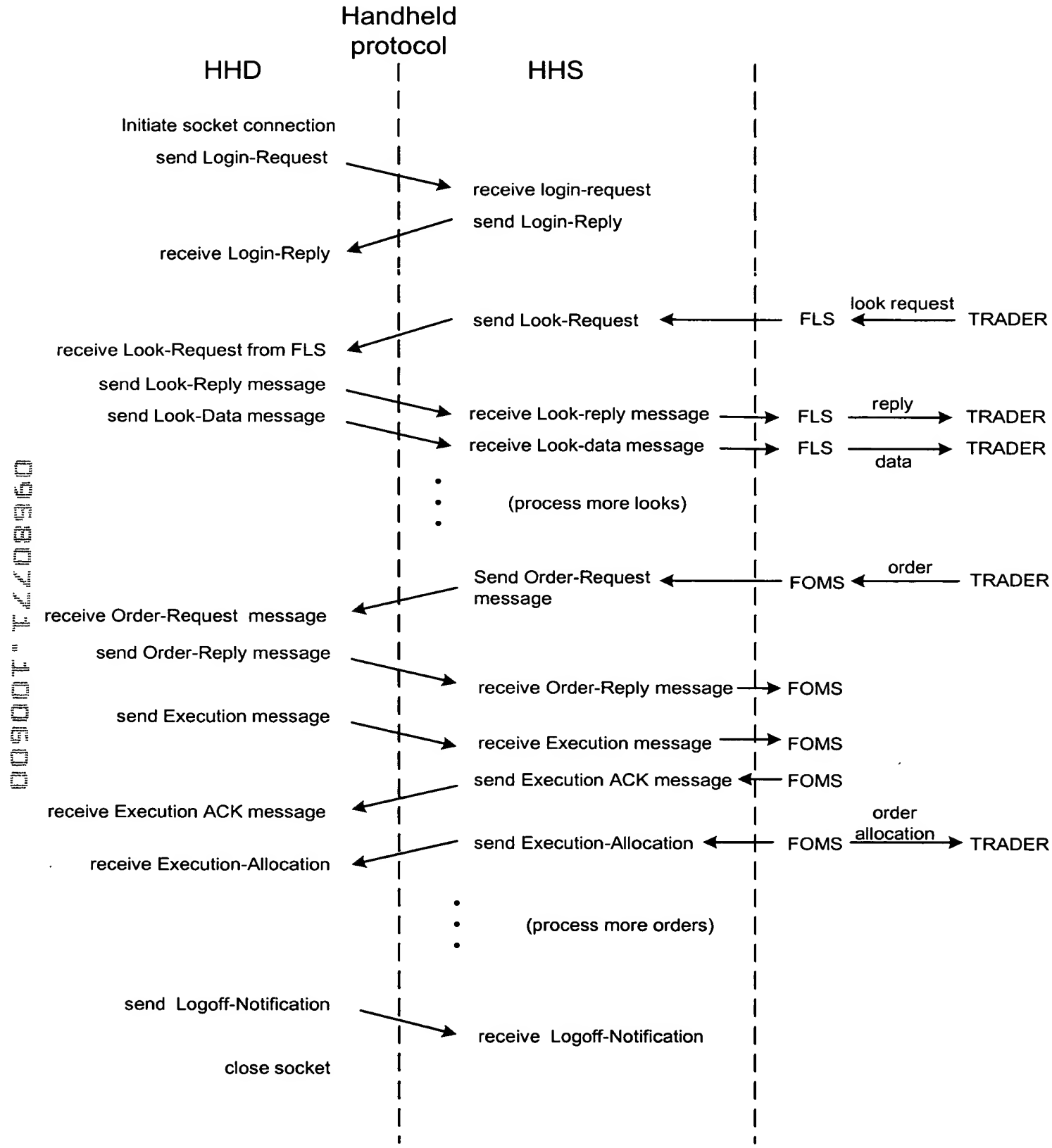
Handheld protocol
HHD
HHS
Initiate socket connection
send Login-Request
receive login-request
send Login-Reply
receive Login-Reply
send Look-Request
FLS
look request
TRADER
receive Look-Request from FLS
send Look-Reply message
send Look-Data message
receive Look-reply message
FLS
reply
TRADER
receive Look-data message
FLS
data
TRADER
(process more looks)
Send Order-Request message
FOMS
order
TRADER
receive Order-Request message
send Order-Reply message
receive Order-Reply message
FOMS
send Execution message
receive Execution message
FOMS
send Execution ACK message
FOMS
receive Execution ACK message
send Execution-Allocation
FOMS
order allocation
TRADER
receive Execution-Allocation
(process more orders)
send Logoff-Notification
receive Logoff-Notification
close socket

FIG. 6

FIG. 7

```
< GSHP SID="22" Seq="33"     LRSeq="1">
<Logon-Reply Success="Y" >
        <Heartbeat-Period Seconds="60"/>
        <Look-Reply-Timeout Seconds="15"/>
        <Look-Data-Timeout Minutes="15"/>
        <Profile-Data>
                <Pair Name="Stocks" Value="IBM,DEC,GE,ATT"/>
                <Pair Name="Destinations" Value="BRK_KALEXA|Alexander,
                Kirsten|BRK_EBARTH|Barth, Elizabeth|BRK_ABERMA|Berman,
                Andrew|BRK_BBRAM|Bram, Ben|BRK_BCONRO|Conroy"/>
                ...
        </>
        <Server-Status FLS="UP" FOMAD="UP" Already-Logged-On="N"/>
        <Sp-Instr Name1="Value1" Name2="Value2" />
        <Timeset Time="19980106174100"/>
</>
</>
```

0960N1 :tnemucod

FIG. 8

```
<Logon-Reply Success="Y">
        <Heartbeat-Period Seconds="60"/>
        <Look-Reply-Timeout Seconds="15"/>
        <Look-Data-Timeout Minutes="15"/>
        <Profile-Data>
                <Pair Name="Stocks" Value="IBM,DEC,GE,ATT"/>
                <Pair Name="Destinations" Value="BRK_KALEXA|Alexander,
                Kirsten|BRK_EBARTH|Barth, Elizabeth|BRK_ABERMA|Berman,
                Andrew|BRK_BBRAM|Bram, Ben|BRK_BCONRO|Conroy"/>
                ...
        </>
        <Timeset Time="19990702144109"/>
        <Server-Status FLS="UP" FOMAD="UP" Already-Logged-On="N">
                <Recovery-Orders>
                        ...
                </>
                <Recovery-Executions>
                        ...

                </>
        </>
</>
```

FIG. 9

```
<Logoff-Notify>
        <Profile-Data>
                <Pair Name="Stocks" Value="IBM,DEC,GE,ATT"/>
                <Pair Name="Destinations" Value="BRK_KALEXA|Alexander,
                Kirsten|BRK_EBARTH|Barth, Elizabeth|BRK_ABERMA|Berman,
                Andrew|BRK_BBRAM|Bram, Ben|BRK_BCONRO|Conroy"/>
                ...
        </>
</>
```

or

```
<Logoff-Notify/>
```

FIG. 10

```
<Look-Request ReqID="123" Sym="GE" FromAddr="FLS">
        <Look-Reply-Timeout Seconds="120"/>
        <Text> I need regular updates on this today </>
        <Priority value="high"/>
        <Look-Data-Timeout Minutes="5"/>
</>
```

FIG. 11

```
<Look-Data ReqID="123" ToAddr="FLS" Symbol="GE">
        <Ink Format="Stroke-Vector">
                dELK349eiqWLDFMlpzasSPO09385Keikaldoe ...
                1lkjLKJoiewSFDoidjs08sdLKJoiSDFKwersDFJ ...
                KskjeiUywqjiuAk982sDj39sSfdkhwSDFJSDfsf ...
                ...
        </>
        <Priority Value="High" />
</>
```

FIG. 12

```
<Msg-Request FromAddr="trader@gs.com">
        <Priority Value="High"/>
        <Text> I want you to cover IBM today as well. </>
</>
```

FIG. 13

```
<Msg-Reply ToAddr="trader@gs.com">
        <Ink Format="Stroke-Vector">
                dELK349eiqWLDFMlpzasSPO09385Keikaldoe ...
                1lkjLKJoiewSFDoidjs08sdLKJoiSDFKwersDFJ ...
                KskjeiUywqjiuAk982sDj39sSfdkhwSDFJSDfsf ...
        </>
        <Priority Value="High"/>
</>
```

FIG. 14

```
<NACK Reason="malformed">
        <Original><![CDATA[
                <Look-#$%uest Symbol="XYZ"/>
        ]]></>
</>
```

FIG. 15

Status Values	Meanings
OK	Order Accepted
UNAVAILABLE	HHD Unavailable – will never be sent to HHD
CANCEL	The order is being cancelled
REJECT	Order is actively rejected by HHD
PASSIVE-REJECT	Order is passively rejected by HHD (timed-out)
RECALL	Order is recalled by HHS
CORRECT-ACCEPT	Order correction is accepted by HHD
CORRECT-REJECT	Order correction is rejected by HHD
CORRECT-PENDING	Order correction has been sent to HHD
PENDING	Order is pending
COMPLETED	Order has been completed

FIG. 16

```
<Order-Request ID="123" Stat="" Sym="IBM" Price="MKT" Qty="10000" Side="Buy" RemQty="10000" Timestamp="19990401121212" FVer="2" SpInst="Day Order" Cap="A" Num="T015560" Booth="Q-3" Trader="OCHD" Ticket="P0116" ExecInst="NH" Flags="" TIF="">
</>
```

FIG. 17

```
<Execution ID="123" Sym="IBM" Side="BUY" Price="100 3/16" Qty="25000" Timestamp="19990401121212">
        <Ink Format="Stroke-Vector">
                dELK349eiqWLDFMlpzasSPO09385Keikaldoe ...
                1lkjLKJoiewSFDoidjs08sdLKJoiSDFKwersDFJ ...
                KskjeiUywqjiuAk982sDj39sSfdkhwSDFJSDfsf ...
                ...
</>
</>
```

FIG. 18

```
<Execution-Allocation ID="123" FID="3876402">
        <Allocations>
                < Allocation ID="123" QtyAlloc="3000" Qty="18000" FVer="2"/>
                < Allocation ID="124" QtyAlloc="5000" Qty="20000" FVer="2"/>
                < Allocation ID="125" QtyAlloc="5000" Qty="15000" FVer="2"/>
                < Allocation ID="126" QtyAlloc="7000" Qty="35000" FVer="2"/>
        </>
</>
```

FIG. 19

```
<Prices Time="19990401121212">
        <Price Sym="IBM" Price="102 5/16"/>
        <Price Sym="CPQ" Price="85 3/16"/>
        ...
</>
```

FIG. 20

```
<Server-Status FLS="UP" FOMAD="UP" Already-Logged-On="N">
or
<Server-Status FLS="UP" FOMAD="UP" Already-Logged-On="N">
        <Recovery-Orders>
                <Order-Request ID="123" Stat="" Sym="IBM" Price="MKT" Qty="10000"
                Side="Buy" RemQty="10000">
                        <NewQty Value="15000"/>
                        <HandedOffQty Value="10000"/>
                        <HandedOffFilledQty Value="5000"/>
                        <SpInst Value="Day Order"/>
                </>
                ... (more orders may exist)
        </>
        <Recovery-Executions>
                <Execution ID="123" Sym="IBM" Side="BUY" Price="100 3/16" Qty="25000">
                        <Ink Format="Stroke-Vector">
                                dELK349eiqWLDFMlpzasSPO09385Keikaldoe ...
                                1lkjLKJoiewSFDoidjs08sdLKJoiSDFKwersDFJ ...
                                KskjeiUywqjiuAk982sDj39sSfdkhwSDFJSDfsf ...
                        </>
                </>
                ... (more executions may exist)
        </>
</>
```

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